

Should Bill Buy "Sammy"?

A Case Study Introducing Basic Chemistry Concepts



by
Jessie W. Klein
Science Department
Middlesex Community College, Bedford, MA

Bill Brown walked through the mall looking for the GNC store. He had been feeling depressed lately and was not looking forward to starting the semester in this mood. The previous day, while eating dinner, he had spoken to his mother about his feelings.

"You know, Mom, I just don't feel like doing anything these days. I'm feeling depressed, don't like hanging out with my friends or going to the gym. I even called in sick to work today. I'm not sure I really want to go back to school this semester. Maybe I should take some time off."

Mrs. Brown was concerned. This did not sound like Bill. He was usually an upbeat guy, liked his job at the software company, and always looked forward to the start of the school year, especially since he was hoping to graduate in the spring.

"Perhaps you should visit my doctor, and he can give you something to make you feel better," she told him. She herself was under a doctor's care and was taking a prescription drug to help control her depression.

"You know how I feel about taking a lot of meds," he said. "Those anti-depressants are so unnatural and can have side effects like sleeplessness, agitation, and headaches. I saw a news report last week about a new dietary supplement for depression. Maybe I should go to the natural food store and check it out." Bill headed out the door and toward the mall.

As Bill browsed the aisles of the GNC store, a sales clerk approached him.

"May I help you find something?" the clerk asked.

"I'm looking for something that might help with depression," replied Bill. "I saw a news report about a supplement that is now being imported from Europe."

The clerk led Bill to the next aisle and handed him a flyer on SAME (pronounced Sammy).

"This is a new product that we have just started carrying. It has been used in Europe for years. Why don't you take a few minutes to look over the pamphlet? I'd be happy to answer any other questions."

Bill took the flyer, quickly browsed through it and found the following information about SAME:

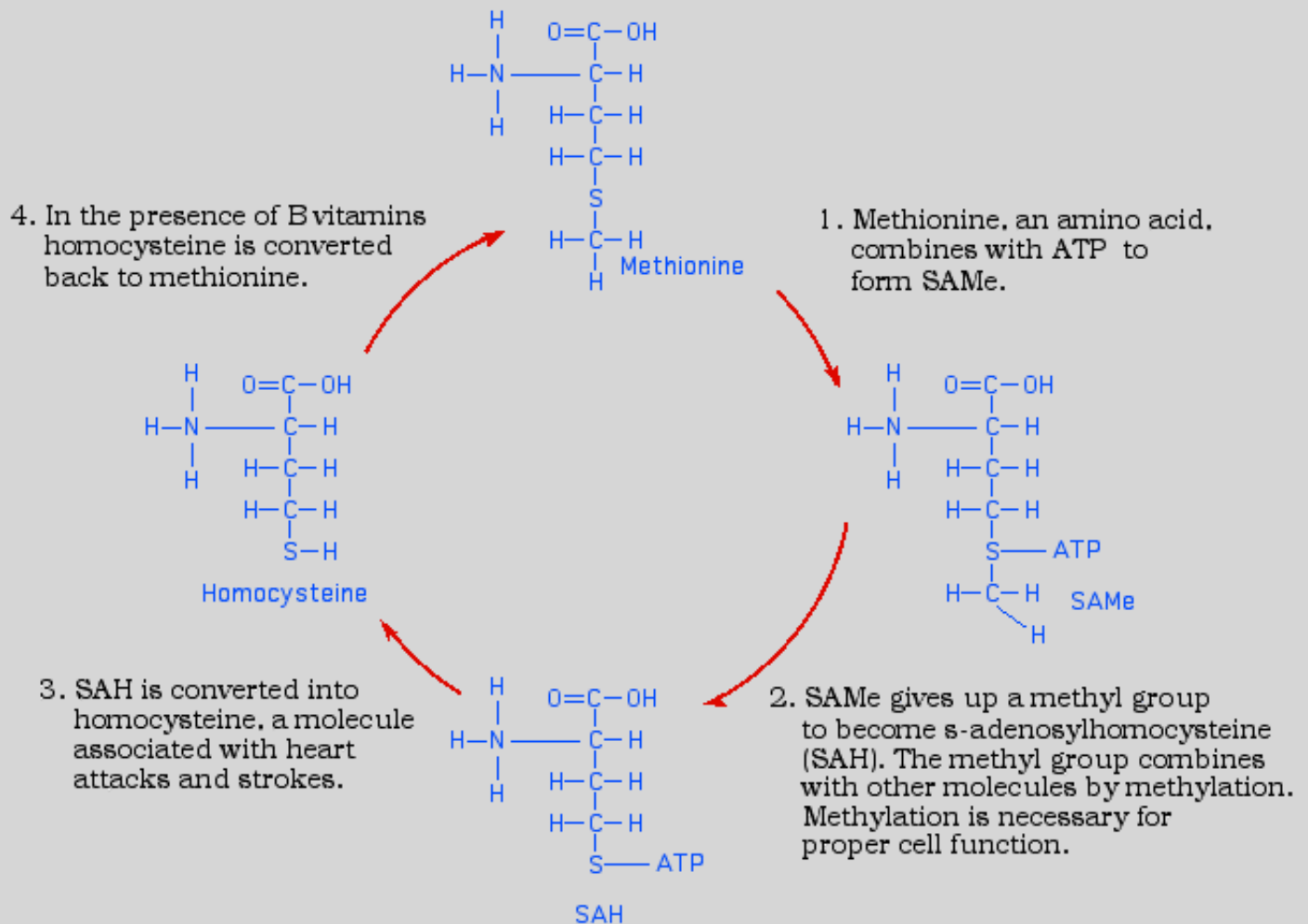
SAME (which stands for s-adenosyl methionine) has been used in Europe for over twenty years to treat arthritis and depression. SAME is a compound found in our bodies and protein rich food. It is formed from an amino acid methionine and is involved in many biochemical reactions that occur in the body. People who suffer from depression tend to have lower levels of SAME. Experiments performed in Italy have found that 70% of depressed patients responded to SAME. This is similar to the results found with prescription drug treatments. Dr. Richard Brown of Columbia University has

found SAME to work just as well as prescription anti-depressants with minimal side effects.

The pamphlet now became more technical and described how SAME works in the body:

Our bodies make SAME by combining methionine with ATP, the energy molecule (see diagram). SAME then passes its methyl group to other molecules (methylation) and is eventually converted into homocysteine. SAME is important for our cells because it is responsible for a major portion of the methylation that occurs in our cells. Methylation is the process by which one molecule donates a methyl group to another molecule. Methylation is necessary for proper gene function, preservation of cell membranes and regulation of neurotransmitters.

The SAME Cycle



High levels of homocysteine have been implicated in heart disease and strokes, but in the presence of B vitamins or folic acid our body converts homocysteine either back into SAME or glutathione, a powerful anti-oxidant.

It is believed that SAME helps to fight depression because methylation is necessary to produce the neurotransmitters dopamine and serotonin that help prevent depression. SAME may also play a role in maintaining the structure of the brain cell membranes and receptors.

Bill finished reading the flyer. He did not understand all the technical information, but he decided to try one

bottle of SAMe to see if it helped him. He knew his mother would not be pleased with his decision, but he would deal with that later.

REFERENCES

1. Bottiglieri, T., Hyland, K., and E.H. Reynolds. 1994. The clinical potential of S-adenosylmethionine in brain mapping, cerebrovascular hemodynamics, and immune factors. *Ann. N.Y. Acad. Sci.* 17(777):399-403.
 2. Cowley, Geoffrey. March 22, 1999. The "Sammy Solution." *Newsweek* 133(12):65
 3. Cowley, Geoffrey and Anne Underwood. 1999. What is SAMe? *Newsweek*, 5 July, 46.
 4. Foreman, Judy. 1999. Trendy Pill Taken with a Grain of Salt. *Boston Globe*. 29 November, sec. C, p.1.
 5. Kagan, Bruce, D. Sultzer, N. Rosenlicht. et. al. 1990. Oral S-adenosylmethionine in depression. A randomized, double-blind, placebo-controlled trial. *American Journal of Psychiatry* 147(5): 591-595.
 6. Konig, B. 1987. A long term clinical trial of S-adenosylmethionine for the treatment of osteoarthritis. *American Journal of Medicine* 83(5A):89-94.
- Murray, Michael M. 1996. *Encyclopedia of Nutritional Supplements*. Chapt. 25, Prima Publishing. (Also available online at <http://store.yahoo.com/iherb/same2.html>.)
7. Peterson, Karen S. 1999. Self-prescribed antidepressant highly touted but untested. *USA Today*. 10 August, sec. D, p.5.
 8. Rosenbaum, J., Fava, M., Falk, W. et al. 1990. The antidepressant potential of oral s-adenosyl-1-methionine. *Acta Psychiatrica Scandinavica*: 81(5): 432-6, May.
 9. Van Kempen, G., Janjua, R. and R. Roos. 1994. The clinical potential of ademetionine(s-adenosylmethionine) in Neurological Disorders. *Drugs* 48:137-152.

ADDITIONAL SOURCES OF ONLINE INFORMATION

- "Can One Substance Treat Both Osteoarthritis and Depression? Checking out the claims for SAMe" Tufts University Health & Nutrition Letter. November 1999. (Temporarily available online at <http://www.healthletter.tufts.edu>).
- Information on SAMe from the GNC website is available at <http://www.GNC.com>; following the path to "Vitamins and Minerals" or type "SAMe" in the search box on the top page of the site.
- Information from the Naturemade website is available at <http://www.naturemade.com>; type "SAMe" in the search box on the top page of the site.

- SAM-e website maintained by the Society for Alternative Medicine Education at <http://www.sam-e.com/>.

Image Credit:

Diagram by Jim Stamos
Department of Biological Sciences
University at Buffalo
Based on diagram in *Newsweek* (July 5, 1999, p. 46)

Date Case Posted: 12/10/99 nas



Home

